

AVIATION WEEK

Guide to Government Aviation Buying ...
PROCUREMENT FOR U.S. AIR POWER

SEPT. 6, 1948

A MCGRAW-HILL PUBLICATION

Grumman's **PANTHER** The U. S. Navy's latest jet fighter *uses*

BG

spark plugs

This new carrier-based jet fighter—the Panther is being produced for the U. S. Navy by Grumman Aircraft Engineering Corporation. The turbo-jet engines built by Pratt & Whitney Aircraft for this airplane are equipped with **BG** SPARK PLUGS.



*BG Model 790-J spark plug
used in Pratt & Whitney
J42-P-4 turbo-jet engines*



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MANUFACTURERS OF AIRCRAFT AND AUTOMOTIVE PARTS



Light Plane Fuel Pumps, Products, Inc., Cleveland—Branch of the Aircraft Accessories Division

THE PRODUCTS shown on this page are part of a wide range of precision units manufactured by the Aircraft Accessories Division of our company as "Egros".

This division has specialized for years in the engineering and production of fuel systems for jet and piston engine military planes, as well as commercial and personal aircraft of all types. It also designs and has manufactured equipment for the production of the turbine engine—main components of gas, turbine or rocket engines, used for supercharging aircraft engines.

It is the largest precision manufacturer of these highly specialized products, and was the largest during the war.

80s engine engine and plane builders and commercial engine operators to use the development, testing and production facilities of our Aircraft Accessories Division.



Transonic plane's tiny tires hold 200 lbs. of air!

James Martin, Skyrocket test pilot, shows them right after a landing, says these little tires are the most vital factor in a sonic plane's high-speed take off. With engine or brake failure, he could let the plane roll to a stop. But if the tires blew out at 150 mph plus, the chance of controlling his little plane would be slim.

The tires on this Douglas-El Segundo Skyrocket, under "wheel" take-off conditions, have to take the highest specific loading and highest speed yet required. Because they must be reinforced into a very limited space,

they must be extremely small, yet strong enough to take the highest pressure ever used in a tire.

B. F. Goodrich engineers developed the tires that would do the job—for the main wheels, 10-ply nylon only 24 inches high and 3 1/2 inches thick! For the nose-wheel, 8-ply nylon 20 inches high, less than 4 1/2 inches thick—all of them designed to carry 300 lbs. air pressure!

Those little tires on the Navy test plane are the strongest, safest tires ever built. They have back of them the big record of B. F. Goodrich engineering development on high

pressure airplane tires—from the first high pressure tires for Navy carrier landings about 20 years ago, to the extra high pressure tires to attract into the thin wings of the Skyrocket, since ship of the carrier Skyrocket.

Constant research helps B. F. Goodrich to introduce sound, long-lasting solutions to the tough problems of a growing aviation industry. The B. F. Goodrich Company, Aircraft Division, Akron, Ohio.

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FIRST IN RUBBER

lowest water pressure at
 300 ft. with 200 ft.
 pressure—4,000 ft. in
 Tampa—4 miles below
 Homestead—271
 feet—100 ft. at
 the mouth of the river
 Length from the mouth
 271 miles

TRIM-TED ACTUATORS ON THE REPUBLIC F-84 "THUNDERJET"

This is but one of the new MA Series of Bendix Motors designed for many aircraft uses—auto-rotar engines, fuel valve actuators, hand-change switching in radio equipment, call-signing devices—in short, for dozens of aircraft applications requiring small D.C. motors. Read the specifications above—then write today to our engineering department for its recommendations.

RED BANK DIVISION

West Bank, Ill. 3



May Gen. Officer P. Eichel (int'l. president of Aircraft Industries Association), is slated to become chairman of the board of Northrup Aircraft, Inc., after the AIA board of governors acts on his request for release from the remainder of his three-year AIA contract. Salary offered by Northrup has not been disclosed, but it is understood to be substantially more than the \$50,000 annually Eichel receives from AIA. He recently received a \$6000 increase in his original \$25,000 AIA salary.

Highes Aircraft Co.'s \$190,000 offer for the Koffert Aircraft Corp. contract for the experimental USAF XH-17 helicopter has been approved by U. S. District Court in Philadelphia, which is supervising Koffert's reorganization. Highes will subcontract most of the project to the Koffert plant at North Wales, Pa., except for powerplant and tail, by General Electric at Schenectady. Koffert's XH-50 helicopter contract has been completed and not yet involved in the sale. Firebird Engine & Airplane Corp. was the other bidder for the Koffert assets.

American Airlines has again refused to accept CAA's recommendation that it continue to charge a half-cent-a-mile premium on its DC-9s after the base 10 percent fare increase takes effect this month. Other carriers, including United, TWA and Eastern, have agreed to lift fares on DC-9s and Constellations from about 6 to 64 cents a mile when they boost regular fares from around 35 cents to 42 cents a mile next

Port of New York Authority. is a letter to Miami DadeCounty, has accused them. U.S. customs opening into LaGuardia Field of trying to obstruct New York City's airport program. The customs have insisted that Port Authority lease the facilities at New York International (Idlewild) Airport are excessive and violate terms of leases negotiated in 1945. Meanwhile, National Authority signed a lease with the Port Authority, covering use of Idlewild.

Charles A. Lindbergh is working without compensation as research consultant for the Air Force on high altitude and "crisis control" flight problems affecting heavy bomber crews.

Navy's Caroline Man, 324-ton flying boat, completed a nonstop 4745-mile flight from Honolulu to Chicago in 24 hr 9 min.



GRUNGAN PANTHER. Navy's new jet fighter, designed and powered for tactical superiority.



GRUNMAN WALLAND *Amphibians*, world's first, safest place for your married, private and special Nure are



GERMAN ALBATROSS, largest
GERMAN Amphibian, for Army's
air-rescue, and cargo-transport.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, Bethpage, Long Island, New York

AVIATION WEEK, September 6, 1945



We're equipped to do precision machining for you on jobs ranging from simple fittings to complex assemblies. Our modern 350,000-square-foot plant contains more than a million dollars' worth of high grade precision machine tools. Facilities offered include:

- engineering
- processing
- tool designing
- tool making
- precision machine production
- heat treating
- furnace finishing
- magnaflexing
- complete inspection equipment

Years of experience as a major aircraft supplier have made our staff thoroughly familiar with aircraft procedures and requirements. A well-rounded engineering organization is ready to service orders and assist our manufacturing shops. In addition, resident Air Force and Naval Inspectors are on hand to expedite handling of government subcontracts.

We'll be glad to have a representative call and tell you more about what we've done and are prepared to do. Contact our Industrial Sales Department, General Mills, Inc., 3630 Central Ave., Minneapolis 18, Minn.

This helicopter transmission assembly was developed and manufactured by General Mills for the world's first turbo-engine helicopter, the XH-40, (below) built by the McDonnell Aircraft Corp. for the U. S. Navy.



Other recent jobs by General Mills have included parts and assemblies for:

- automatic pilots
- flap and landing gear actuating systems
- directional and fire control instruments
- mechanical radar systems
- landing gear cables



AVIATION WEEK

Procurement For U. S. Air Power

AVIATION WEEK devotes this issue to the subject of U. S. aircraft procurement.

The Federal government is spending \$4,395,000,000 on aviation in the current fiscal year. This is more than twice the \$1,760,000,000 expended in the 1945 fiscal period.

This is no temporary, short-term buying spree. It is the beginning of a five year plan for military air rearmament and civil aviation development deemed essential by Congress. It is an unprecedented peacetime aviation program.

Actually, military aviation budgets for the next five years may run as high as \$31 billion.

These expenditures will be directed mainly by seven important agencies, whose organization, procedures and programs are described in this special handbook of government aviation purchasing. The agencies are:

United States Air Force
United States Navy
National Advisory Committee for Aeronautics
Armaments Board
National Security Resources Board
Air Navigation Development Board
Civil Aeronautics Administration

Even veterans of wartime procurement will find many changes have been wrought since World War II.

The National Defense Establishment has been reorganized. The Air Force has won autonomy. New agencies have been created. Other groups have been dissolved.

Both the Air Force and the Navy have adopted streamlined procurement philosophies and techniques, borrowing from the experience and mistakes of the past.

The new program embodies radical technical differences over pre-war and wartime aviation. Jet engines, supersonic fighters, 10,000-mile bombers, and all-weather aircraft require new processes, new products, and new firms in addition to established industry.

In addition, industrial planning being set in motion on a large scale will offer increasing aid in directing industry participation in America's aerial rearmament.

This issue is intended as a guide for industry, to the new procurements program and the agencies responsible for its completion. It is, we believe, a service for buyer and seller alike. For so Maj. Gen. K. B. Wolfe points out in a statement to AVIATION WEEK, the Air Force, like the Navy, is constantly striving to increase the number of prime and subcontractors. In this way, competition is sharpened, and the cost to the agencies and the taxpayer is reduced.

ROBERT H. WOOD



In the present age the Navy leans heavily upon industry to keep us as far ahead of the developments in what has been called "the Dawn of the Supersonic Age." We do not wait, we do not dawdle, to extend the aviation industry. Rather, we look to the aviation industry to design, develop and manufacture the indicated requirements of Naval aviation.

We have learned that any conflict between world powers is going to reach a battle between the producers and resources of these powers as it is of means and facts. The production of aircraft and its integral components, which provides the weapons of Naval Aviation, necessitates a close relationship between the Navy and the aviation industry.

In World War II the aviation industry performed magnificently in developing and producing for our needs. A good job in the past, however, does not relieve industry of its responsibility to the future. We know now that war is not to be the plan for several billion war years. Future is planned to believe in the responsibility of preparation.

There are two ways in which we may afford production to satisfy the needs of Naval Aviation: insuring a high level of production to keep us as near as possible to a state of readiness for war, or, in the alternative, plan for rapid conversion from peacetime production to a wartime level.

There are those who say that insuring a high level of production for Naval Aviation is expensive. They would be well to picture the cost of defeat in war. Those who have the rapid conversion means of production must remember that the quality of the industry during peacetime that provides the aviation basis which the wartime industry as a whole will grow, must be kept healthy and constantly alerted to its job. The aviation element of the industry must never be allowed to falter, as in the past.

Peace is well as war is a dynamic thing, to be fought with all the tools available. The Navy stands ready to fight for peace and looks to the aviation industry to provide its necessary tools.

A. M. Fide

A. M. Fide
Chief, Bureau of Aeronautics



The security of the United States is dependent upon the combined efforts of private enterprise and the armed services.

In order to meet aviation and defense requirements deemed necessary for national security, the Air Force must account not only its military strength to about 400,000 men but must also bring into being aircraft, flying equipment and ground equipment of all kinds.

To insure that the maximum skills of the nation's specialized technicians are utilized to the fullest extent in the air defense program, the Procurement Division, Air Materiel Command at Wright Patterson Air Force Base, Dayton, Ohio, is constantly striving to obtain the facilities of small business concerns in peace or subcontractors. These small firms will play a vital role in the procurement of aircraft and the associated equipment in the event of another emergency. Additional sources of supply for the defense create a competitive market which reduces to a minimum the expenditure of appropriated funds for any one particular procurement and permits the procurement of defense equipment which would otherwise be unobtainable.

The Procurement Division has adopted storehouse procurement, a house system which has made it possible to assign to an individual called a "buyer" the complete responsibility for procurement of a certain type of aircraft. Buyers have been vested with considerable authority which previously was retained by various divisions of command. This has resulted in contractors experiencing considerable difficulties in their Air Force contract relations. Streamlined procurement has, to a great extent, eliminated these difficulties, thus giving the way for maximum use facilities to become an integral part of our national defense.

The Air Force program affords the well-being of every segment of the aviation industry and those firms supplying associated equipment. It will only be through the cooperation and teamwork of all concerned that our objectives in air defense can be achieved.

E. H. Wolfe

E. H. Wolfe
Director, Procurement and Industrial Planning
Air Materiel Command

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AVIATION WEEK

Sept. 6, 1948



North American XA-1, first Navy new type combat bomber. XA-1 is powered by two Pratt & Whitney Wasp Major and a GE-Albion TG-180 jet engine. Costing \$1,800,000, it carries more load than the Lockheed P-70 with jet speed over 400 mph.

Your Big Customer: Government

Its aviation expenditures have climbed from \$1,766,192,000 to \$4,895,386,000.

The aircraft industry is beginning its largest peacetime production program in history since the United States government.

Federal expenditures for aviation have skyrocketed from \$1,766,192,000 during fiscal 1945 to \$4,895,386,000 approved by Congress and obligated for spending during fiscal 1949.

Triple production—aircraft and engine production will soon triple its wartime level. Demand for electronic and communications equipment for aircraft and strategy is increasing greatly.

Keynote in the government peacetime program is the five year plan for rebuilding U. S. military air power. The record \$2,766,000,000 voted by Congress for new aircraft last spring is considered only the first step in the seven year expansion plan. Breadth of these five year plans is based on the

figures on page 18. Basic difference between Plans A and B is that the seven

expansion plan (111,000,000 aircraft by annually) includes the Navy's program for new 61,000 ton carriers. NAC Yachtclub — But yardstick for measuring the aircraft procurement program now under way is the Air Coordinating Committee's export con-

Planes Required for Current National Defense Plan

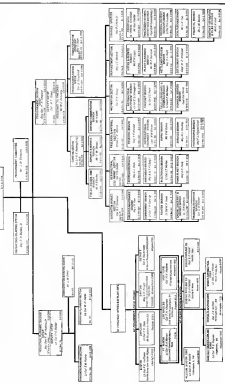
(Official U. S. Air Force and Navy Figures)

Air Force	20,540
Navy	14,474
Total	34,915

Annual Aircraft Production Rate Required to Support These Forces

	Planes	Airplane Weight
Air Force	5700	81,000,000 lb.*
Navy	3900	50,000,000 lb.*
Total	9600	131,000,000 lb.

* Estimates



Air Force Offers Streamlined Buying Plan

Staff of specialized buyers now handle bulk of expanding procurement program.

Scrapes of procurement specialists steadily at the buying center of the U.S. Air Force, aviation's largest customer.

Operating in a new streamlined procurement organization, more than 100 buyers—key civilian and officer purchasing specialists in Air Materiel Command headquarters, Wright-Patterson Air Force Base, Dayton, Ohio, are making purchases which will add up, eventually, to the largest peacetime Air Force this country has ever known.

Chief seen in perspective is a moderate program for insurance against the uncertainties of a second world war, the new Air Force buying program looks expensive.

► **Funds Tapped**—Approximately three times as much money, \$2,100,000,000, will be available in the fiscal year 1949 for USAF material as was authorized for in fiscal 1948 when the total was \$670,000,000.

As of Aug. 1, there were 1443 more inventories and firms which had given contracts with USAF. Sub-contractors from these major companies are distributed among more than ten times as many smaller firms. Both of these numbers will be expanded materially in more contracts set forth within the next few months.

► **Central Procurement**—USAF centralizes procurement of material and supplies for general use at all Air Force installations for procurement of aircraft and accessories, for procurement of research and development contracts—personal services and other specialized or technical services in the Procurement Division of AMC.

This is accomplished through a new vertical buying organization whose principal components are the provision buyers, a reviewing procurement committee, and two military chiefs.

The new procurement system, expected last January, will send additional numbers of trained experienced buyers to the volume of contracts required. Top buyers salaries are among the highest paid to government employees anywhere, as a tangible indication of the importance USAF places on these positions. This has, in turn, been a factor larger than comparable quantities paid dual to top buyers in industry, although the industry buyer's salaries in most cases are considerably greater.

But the compensation is viewed by top industry representatives as a considerable improvement over the former setup. It promises, eventually, to reduce about as efficient an operation as is possible considering right now which apply to the spending of public funds.



Gen. J. J. McNamara

► **Key Personnel**—Gen. Joseph T. McNamara, AMC, commanding general, has designated buyer responsibility to his two military chiefs of the procurement center: Maj. Gen. Kenneth B. Wolfe, Director of Procurement and Industrial Planning, and Brig. Gen. H. Shepard, Chief of Procurement Division. They are the final subordinates to pass on all large contracts and have indirect responsibility for smaller contracts approved by the individual buyers and the Procurement Committee.

Presiding the position of Gen. Shepard as chief of procurement is that of Maj. Gen. F. M. Haskins as chief of Industrial Planning Division. This division introduces the procurement requisition to Air Force procurement as a part of its duty to monitor an up-to-date roster of approved American plants which are deemed competitive to supply Air Force material. (Other details of the work of the Industrial Planning Division will be found in another item in this issue.)

► **Contract Relations**—In Room 602 of Building 10, the gate to Area B of Wright-Patterson Air Force Base at Dayton, a contractor's schedule office is maintained, where the representative of any enterprise opening to get Air Force business can find the means to make of his question.

Unless companies are located in the immediate Dayton area, they will probably find it more convenient and less expensive to get their initial information about Air Force contracts from one of the Procurement Division field offices located outside Dayton (A seventh field office is located at Wright-Patterson AFB).

Valentines and telephone numbers of the field offices follow:

- **Chicago**, 79 S. LaSalle St., Randolph 9750
- **Dayton**, Wright-Patterson AFB, Room 7111, Ext. 70214
- **Detroit**, W. Warren and Longfellow Avenues, Detroit 17, Mich.
- **New York**, 67 Canal St., Whitehall 4100
- **San Antonio**, 15 Tarrant St., Capitol 9700
- **St. Louis**, Consolidated-Victor plant, 42301
- **Los Angeles**, 1286 S. Main St., Post 4711

► **Company Introduction**—Either at the field office or at AMC headquarters, the new approach to contractor's status takes its first step by introducing his company. On a package while times (ACRP Form 70-547) he is asked to list data about his plant to be filed in AMC headquarters in a Service of Supply file, along with other manufacturer's who make the same type of products and who are likewise interested in getting contracts for them from the Air Force.

► **Information Required**—The USAF wants to know the manufacturer's production and research facilities, his past, present and potential products, available manpower and financial responsibility. Perhaps the newcomer will object to this as rather different from his less formal private business contact relationships. But there are solid reasons for the procedure.

Individual Air Force contracts in most cases are keyed into an overall plan. Tenders to individual contracts will not only cause delays in procurement of the specific items ordered, but more time will then be the overall trouble, and even other delays in procurement.

By doing business with the most competent suppliers in industry by the Source of Supply file, it is hoped to prevent some of these contract delays in advance. Another reason for the Service of Supply Division is its possession of future material schedules.

► **Invitation to Bid**—After the manufacturer has been in the necessary data and listed in a Source of Supply or AMC headquarters for the specific products

Government Aviation Obligations Under 1949 Fiscal Year Appropriations

The following excerpts from the revised 1949 Budget, after approval by Congress, indicate the amount and nature of the major expenditures authorized for aviation programs. The figures do not include salaries or other administrative expenses.

U. S. Air Force		1948	1949	Navy, BuAer		1948	1949
Procurement of Aircraft		\$419,486,090	\$1,275,380,000	Procurement of Aircraft		\$111,470,000	\$366,100,000
Construction—Improvement		48,792,000	45,393,000	Construction for Schools		2,000,000	1,800,000
Control—Mainland		11,000,000	10,300,000	Industrial, Research and Development		6,000,000	6,000,000
Majority Aircraft		15,710,220	14,000,000	Research and Development		350,000	510,000
Test and Eval.		111,000,000	117,000,000	Scientific Research		110,000	1,400,000
Maintenance of Equipment		30,000,000	29,047,000	Design and Production Equipment		12,000,000	12,700,000
Individual Equipment		251,000	2,000,000	Design and Production Equipment		4,570,000	5,000,000
Supplies and Materials		112,000,000	7,900,000	Equipment of Aircraft		281,150,000	115,510,000
Industrial Research and Development		4,077,000	4,547,000	Operational Aircraft		915,500,000	977,540,000
Photography Equipment		1,500,000	7,000,000	Supporting Aircraft Equipment		\$1,000,000	14,000,000
Space and Airborne Projects		200,000,000	200,000,000	Other Equipment		2,000,000	2,000,000
Planning and Training		1,400,000	7,500,000	Maintenance of Systems		97,710,000	102,000,000
Construction of Facilities		1,000,000	100,000,000	Major Projects, Improvements		24,000,000	110,000,000
Research and Development		300,000	20,000	Research and Development		70,000,000	110,000,000
Personnel and Development		100,000,000	100,000,000			\$775,174,000	\$1,499,000,000
Personnel and Development, Medical		6,700,000	9,110,000				
Personnel and Development, Medical		6,700,000	9,110,000				
Personnel and Development, Medical		6,700,000	9,110,000				
TOTAL		\$914,686,000	\$2,103,374,000				
NACA							
Civil Aeronautics Administration				Contracted Services		\$1,875,000	\$1,425,000
Aircraft and Airports		\$4,711,000	\$4,724,000	Supplies and Materials		1,285,000	4,300,000
Equipment		2,511,000	1,118,000	Equipment		1,285,000	4,300,000
All Navigation Facilities and Equipment		2,200,000	11,000,000	Construction and Improvements		11,625,000	36,607,000
Terminal Facilities, Supplies, Equipment, Services, Material, etc.		103,311	355,420				
Personnel		200,000	200,000	TOTAL		\$24,949,000	\$44,117,000
Construction, National Airport		700,000					
Transportation, National Airport		12,500,000	40,000,000				
TOTAL		\$46,033,311	\$61,135,700				
1948 Grand Total—\$1,763,192,000; 1949 Grand Total—\$4,595,536,000							

Five Year Plan for Expenditures and New Contract Authority for Military Aircraft

(By fiscal year in billions of dollars)

	Fiscal A. 1941,000,000 aircraft (b.)					Fiscal B. 1941,000,000 aircraft (b.)				
	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
NAVY:										
Appropriations for aircraft program	00	2.15	0.5	1.00	1.20	1.30	0.7	0.8	0.8	0.8
Contract authority for aircraft	215	200	1.04	1.31	0.90	0.90	7.7	7.7	7.7	7.7
Total appropriations for aircraft	215	202	1.54	2.31	2.10	2.20	8.4	8.5	8.5	8.5
NAVY:										
Appropriations for aircraft program	1.60	0.80	1.30	2.40	3.00	3.30	1.7	1.8	2.0	2.2
Contract authority for aircraft	0.1	1.00	2.40	3.20	2.20	2.30	2.50	2.50	2.50	2.50
Total appropriations for aircraft	1.70	1.80	3.70	5.60	5.20	5.60	4.2	4.3	4.5	4.7
TOTAL NAVY AND AIR FORCE										
Appropriations for aircraft program	1.60	0.80	1.30	2.40	3.00	3.30	1.7	1.8	2.0	2.2
Contract authority for aircraft	0.1	1.00	2.40	3.20	2.20	2.30	2.50	2.50	2.50	2.50
Total appropriations for aircraft	1.70	1.80	3.70	5.60	5.20	5.60	4.2	4.3	4.5	4.7

* These figures represent authority in contract, and appropriations for liquidation are included in the appropriation figures for the years in which expenditure is anticipated.

The total appropriation figures for aircraft include pay, allowances, subsistence, medical care, etc., of personnel personnel, whereas the similar figures for air force do include such pay and support of unclassified personnel. The figures for the total appropriations for Navy do include pay and support of all unclassified personnel of the Navy.

* Excluded is 1948 Supplemental National Defense Appropriation Act, signed May 21, 1948.

Navy Now Expanding Aviation Program

Combat air groups will be doubled with
3300 plane annual production rate.

Naval Aviation is in the midst of an expansion program aimed at reaching a goal of 14,500 planes by the middle of 1949.

This is the official Navy plan as outlined by Secretary of the Navy, John L. Sullivan and Admiral Louis Doolittle, chief of naval operations, and approved by the Joint Chiefs of Staff.

Increased Production—Aircraft more than doubling in Naval types will be added upon to double a substantially expanded production program to support the Navy's expanded air program. Annual production rate, which has been increasing steadily during the past two years, will hit a 3,300 plane annual level under the 14,500 plane program Navy conducted for 1200 planes in fiscal 1948, has aimed letters of intent for 1949 for fiscal 1949 and will require the 3300 annual production rate for fiscal 1950.

Naval Aviation is currently at a 30,000 plane strength. Translators built up to the 14,500 plane level will be accomplished by taking 1600 planes out of storage pools. These planes at 18 wartime types now fast approaching obsolescence—Curtis Wrights (CW-1), Grumman Avengers (TBF-1), Vought Corsairs (F4U) and Grumman Hellcats (F1H). These 1600 planes will be replaced the previous strength pool by July, 1949 and place the full burden of replacement on current production beginning early in 1950.

Strong Philosophy—Navy philosophy regarding its expansion goal is that the type of aircraft left over from the last war are fast approaching the end of their useful service life and should be retired now while they still retain some operational usefulness. As the new types now on order are delivered they will gradually push types now operational out of combat units back into the storage pool and from there eventually to the scrap heap.

Virtually all of the 1600 planes now being withdrawn from storage will go to combat units to double the current strength of Navy air combat units. Navy now operates three line carrier air groups of the Fletcher D. Ross, will plan plus one smaller carrier of the Essex class. The 13 air groups now available for these 13 carriers will be expanded to 24 groups.

Six Refuel—The four anti-submarine killer groups now operating on carriers of the Seaplane class will be increased to



Vice Adm. John D. Fox, DNO for Air.

Six Sea King wings for long range reconnaissance, anti-submarine and convoy patrol and early warning under powers for air attacks will be located from present strength of 14 squadrons to 40 and will be equipped with Lockheed Superfortresses (F5V), Martin Mixmasters (PM-1) and Grumman PT-17 all long range patrol planes. Two Marine air wings operating from four carriers of the Hancock class will be increased from 22 to 33 squadrons.

The Naval air program will consist of 4 carrier attack groups, 4 anti-submarine carrier groups and 12 patrol squadrons. Marine air reserve will have seven support groups.

Five expanded Naval air program

will require 110,000 officers and men backed by 48,714 marines. It will also require in immediate expansion of Naval pilot training to produce 2500 pilots annually. Navy now needs 4800 additional pilots and 30,000 aviation enlisted men.

Sketch is also significant to aircraft manufacturers and subcontractors will be the Navy's announced switch in the fiscal 1949 aircraft procurement program to proposed planes. The previous year's contracts showed 95 percent going for replacement equipment. This year 55 percent of the contracts to be let are for proposed planes. All of the 807 Navy fighters will be purchased with fiscal 1949 funds will be jet-powered with the first four carrier powered attack and patrol planes using small combinations of jet and reciprocating engines appearing on the production schedule.

Navy plans do not yet include any all jet attack types. Composite power attacking reconnaissance planes for training to get range and a jet for relatively short high speed tactical maneuvers will characterize Navy attack planes for the foreseeable future. Another development that offers promise of future performance gains is the use of turbo-jet engines both for long attack planes and long range patrol and anti-submarine planes.

Naval Fighters—Presently Navy plans call for air of the McDonnell F4H (F4H) and the Grumman Panther (F9F) in standard carrier jet fighters. But, of Navy fighter production is to be 4849-50, the Navy will have two types: The Douglas F3D, a twin jet night fighter in training use the production phase but, because of its specialized use, will not be ordered in quantities approaching 100.

Expanded Naval Air Program (Breakdowns by Types Required)

COMBAT		NON-COMBAT	
Fighters	1990	Torpedo (heavy land)	94
Fighters	1972	Transport (medium land)	907
Patrol (heavy land)	292	Utility (medium land)	512
Patrol (medium land)	300	Utility (heavy land)	129
Patrol (medium sea)	194	Training (medium land)	715
Patrol (medium)	67	Training (medium land)	712
		Helicopters (medium)	189

TOTAL COMBAT 6819 TOTAL NON-COMBAT 3668

Total operating aircraft (exclusive of support)

Logistic support (transport, overhaul, etc.)

Total (exclusive of support)

Total (exclusive of support)

Appearing at the end of current Navy fighter production schedules is the Chance Vought F7U, a tailless jet fighter, that often considerable promise in its experimental version. It is by far the most radically designed aircraft to appear in a Navy production schedule and may back logs in fiscal 1953 production.

◆**Douglas Skender**—In the attack phase data, the Navy has certainly distinguished on the Douglas Skender (AD-21) with the North American AJ-1 just missing out the prize. The AJ-1 is the first of the Navy's new type response-to-potential attack planes. It features two projecting engines with turbojets burned in belly. For patrol planes the Navy will see presently an improved version of the Lockheed Neptune (P2V) with a production program that will carry the plane through to the end of the line in the data is the Convair P5Y featuring the high length-basis ratio that will be the hall mark of the new line of Navy patrol flying boats. Experimental model of the P5Y is expected to fly this year with production getting under way in 1950.

◆**Navy Fleet Flight**—The size and fate of the Navy fleet, however, will not depend solely on Navy plans. It will be determined by how well the Navy withstands the assaults of the Air Force in the area of Joint Chiefs of Staff conferences and before Congress. It is there that the Air Force is making its most determined bids to have its base Navy air actively placed under its wing.

Major as in Air Transport Command and the Naval Air Transport Service under Air Force command, outlined the Navy's initial defeat on the pre-production battlefield. Now the Air Force proposes to take over all Naval air training in a "unified" command. This battle it still being fought.

Still another major conflict is raging over the ultimate fate of the Navy's \$1,000 million program. Plans for beginning construction of the prototype carrier of this class have been vetoed by Congress but it will take four years to build the first ship. This program can expect to be under national leadership by the Air Force.

Navy's strategic philosophy is that last years talk force equipped with jet fighters and long range attack planes more than twice as high in cost as currently in service, will be able to postpone more talks of small warfare during the foreseeable future that the Air Force wants to do. To get a chance to prove this theory the Navy will have to deliver its most successful to the Joint Chiefs of Staff and the next session of Congress.

Navy Offers Incentive Plan

Manufacturers can boost profits through more efficient production; buying process detailed.

Navy is now handling virtually all of its aircraft purchases under its own two type contract that offers a unique incentive a profit premium for efficient production.

Under this type of contract the Navy Bureau of Aeronautics contract negotiation and the manufacturer agree on the best possible price which includes a standard rate of profit. If the manufacturer builds his planes at a higher cost than that specified in the contract the entire loss is split between the Navy and the manufacturer. If the planes are produced at less than the specified cost the manufacturer is allowed to keep 20 percent of the savings in price, with the Navy benefiting from the other 80.



Rear Adm. Lloyd H. Brown, Procurement Chief

person. Then the most efficient manufacturer will make the largest profit.

◆**Figure Contract**—This incentive contract has proved popular with both manufacturers and the Navy since its introduction in 1942. It offers the manufacturer a financial incentive for efficient operation and reduces the cost of his products to the Navy. So far this type contract has been applied only to defense contracts but some consideration is being given to extending it to aircraft engines and components that are now handled by fixed price plus a fee type contract.

Aircraft procurement for the Navy is centered primarily in the Bureau of Aeronautics at Navy Headquarters, Washington, D. C. Only other Navy facility that has substantial quantities of aviation equipment in the Navy

Aviation Supply Office at Oxford Ave. and Marine Bld. in Philadelphia.

◆**NASO Best Spares**—NASO buys all spare parts and raw materials required by the naval aviation maintenance program. NASO purchases include in-house items; manufacturers also must purchase on spares for specific plane types, a large quantity of standard hardware such as nuts, bolts etc., and raw materials for maintenance work. Hand tools and raw materials are purchased directly from suppliers by NASO.

An NASO representative is stationed at Wright Patterson Air Force Base in Dayton, Ohio, to coordinate all spare parts purchases for both services. All Navy parts purchases are coordinated with the Air Force and many types common to both services are purchased jointly.

◆**Buyer's Role**—Bureau of Aeronautics in Washington buys all naval aircraft prime products and all section sub-assemblies including spares and complete units required for maintenance. The three main divisions of Buyer fit into the procurement process as follows:

◆**Research and Development**—Headed by Rear Admiral T. C. Lounsbury, handles all experimental programs and in general determines what lines of development offer most promise. Under this division, research contracts are awarded in those where no end product is in sight. Development contracts are those calling for eventual production of an end product. This division is an important factor in the procurement program for two reasons: it sets a large number of research and development contracts and out of its results obtain from these contracts comes the general direction of the large scale production procurement programs of naval aviation. If a manufacturer is to be in the research and development phase of a type of product he obviously has an inside track for fixed cost production contracts in the field, other factors being equal.

◆**Negotiated Contracts**—Research and development contracts are all single and type contracts on a cost plus fixed fee basis. On experimental aircraft contracts are placed on a fixed price basis for the phase ending with completion of the flight test article and then on a basis of cost plus fee during the flight testing period since this type of cost is completely unpredictable.

From the results of the research and



1 Cmdr. Alexander Conners

2 Capt. Basil Engaro

3 Capt. Stephen Pinner

4 Cmdr. Hink Production

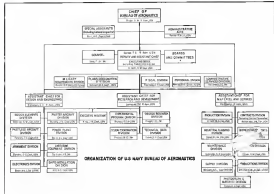
development programs the design and engineering staff headed by Rear Admiral C. A. Nishimoto formulate a program of specific items required for large scale production. This work is headed by some 30 "study" workers the division each charged with technical responsibility for a specific item such as lighter planes, attack planes, transports, patrol planes, electronics, supporting power plants, jet engines etc.

◆**Material Division**—Material and avionics division headed by Rear Admiral

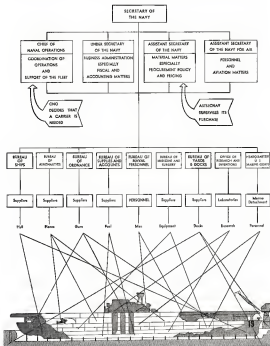
Lloyd H. Brown, takes the detailed requirements handed down by the Chief of Naval Operations through the technical division in design and engineering and the plans co-ordination division and translates it into a procurement program that will produce what naval aviation needs when it is needed. Procurement operates integrally with the plans co-ordination division and is set into the flow of a procurement directive by material and avionics division. It is this procurement directive that eventually becomes a contract.

Within the material and avionics division the production division plans the procurement program. Contract division determines what type of contract is to be used and conducts all negotiations with the contractor. It is the contract division that signs the finally approved contract making it legal.

◆**Contract Types**—Navy uses three types of contracts. As required by the Armed Services Procurement Act of 1947, advertisement bids must be used unless the items to be purchased can fit. (Continued on page 35)



How the Navy Buys a Carrier



22

AVIATION WEEK, September 4, 1945

THE FAMOUS

Red Elastic Collar IS 1

VISIBLE EVIDENCE OF LOCKING SECURITY



- ensures accurate bolt loading
- more efficient assemblies
- because

any assembly holds the ESNA. Elastic Stop Nuts are secured with the lower ring by design collaboration. This quality of design is the only one that requires no fasteners of the lower end elastic nut. No knurle is there any need to over design, as protection against failure failure. Why? Because unlike ball ball ring permits more compact design with maximum weight reduction.

Further, EUSA Elastic Stop Nuts lock in position anywhere on a bolt or stud without any frictional aid from bolt heads or end geometry. They have both

The NEW PLASTIC CONCRETE is . . .



PERMANENTLY CONFINED to prevent
harming under application and follow
your individual stream.



PERMANENTLY SECURE against all further efforts. The hole improves (does not yet feel) sealed thereby.



PERMANENTLY BUILT equalized rubber built threads have 100% permanent rubber in each of the tread area.



REMARK. The last Elastic Collar involves a pipe with supported ends.

ESNA ELASTIC STOP NUTS

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APPENDIX



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APPENDIX



2010年12月



END

PRODUCTS OF: ELASTIC STOP NET CORPORATION OF AMERICA

AVIATION WEEK, September 6, 1945

23

In AVITRUC check for Versatility

Whether the job is cargo delivery, arctic rescue or small field evacuation—AVITRUC can do it...



...if the assignment demands offshore loading, delivery to boat or pier or handling an difficult terrain—
check AVITRUC

**DESIGNED
FOR THE JOB**

CHASE AIRCRAFT CO., INC.



HEADQUARTERS
WEST TIREMONT, N.J.

under one of the 17 exceptions allowed by negotiated contracts. The bulk of all aircraft, engine and major components are ordered through exceptions and are handled by negotiated contracts.

In addition to the executive type there is the normal fixed price type of contract and the cost plus a fixed fee contract. Many engine and component contracts are now negotiated on a fixed price basis.

• **Naval Aviation Buying Offices are Listed**
Under one of the 17 exceptions allowed by negotiated contracts. The bulk of all aircraft, engine and major components are ordered through exceptions and are handled by negotiated contracts. In addition to the executive type there is the normal fixed price type of contract and the cost plus a fixed fee contract. Many engine and component contracts are now negotiated on a fixed price basis.

General Procurement Agencies

- Dallas, Texas—Naval Air Station
- Cherry Point, N. C.—Marine Corps Supply Depot
- Corpus Christi, Texas—Naval Air Station
- Jacksonville, Fla.—Naval Air Station
- Memphis, Tenn.—Naval Air Technical Training Command
- Miami, Fla.—Naval Air Station
- Norfolk, Va.—General Supply Depot
- Patuxent River, Md.—Naval Air Training Center
- Pensacola, Fla.—Naval Air Training Base
- Santa Ana, Calif.—Marine Corps Air

Stores

- Washington, D. C.—Naval Research Laboratory

Special Procurement

- Philadelphia—Naval Aviation Supply Office, Ordnance and Marine Mater. Bldg., Philadelphia 13, Pa. Phone PG-5-5464 contractors 220 (procurement planning for aviation maintenance supplies)
- General Stores Supply Office—Phone PG-5-5464 contractors 215 (procurement planning for standard stock items)
- Naval Air Material Center, Naval Shipyard, Philadelphia 13, Pa. (procurement of aircraft items)



ANSWERS COWL FLAP CONTROL PROBLEMS

Few actuators can equal the service record of this highly efficient Lundy Unit. Installed on over 500 C-47 Forcible Pushers, it performs with maximum effectiveness in almost all conditions as well as the design's best. Rugged? Yes, ruggedness which pays off in less service troubles and lower maintenance man hours.

Let Lundy engineers adapt or design in "Trouble free" solution for your aircraft. Whether for cowl flaps, trim tabs, or other controls, a Lundy actuator can meet your needs. Send specifications, including load requirements and envelope space. No obligation, no write now.



Write for catalog, #L-1 or Lundy Actuator and Assembly, 17, NEW!

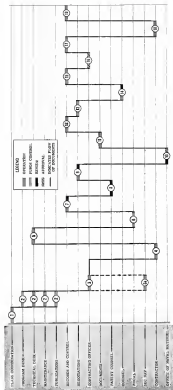


Lundy Manufacturing Corporation

205 East 43rd Street, New York 17, N. Y.

MANUFACTURERS OF AERODYNAMICS AND ACTUATOR MECHANISMS

How Navy Procurement Process Works



NOTE: (H) indicates the step and step of contract is contained in the contract documents and specifications.



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ALUMINUM CASTINGS



Help keep labor costs DOWN!

Clean, sleek castings — often requiring no machining operations, and saving more than a minimum . . . Castings made to tolerances as close as $\pm .010"$. . . Castings of finer grain structure, greater strength and hardness, consistent uniformity.

Such are aluminum alloy castings made by the Permite Permanent Mold process. They're advanced, modern castings that step up profits by reducing finishing operations and helping hold labor costs to a minimum.

With Permite Castings you can machine the full run of a part well within the tolerance, without tool resetting. And the greater tensile strength of these "precision-mold" castings frequently permits thinner cross-sections, reducing weight and cost.

It will pay you to investigate the cost-cutting possibilities of Permite Permanent Mold Aluminum Castings for your products. Submit blueprints for recommendations and quotations.



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Check THESE *new* REASONS WHY SIMMONDS PACITOR GAUGES

(REGISTERED)

lead the field

Because of many design advantages, Simmonds Pacitor Gauges lead the field in their acceptance by engineers, maintenance crews and operators.

New, Simmonds presents a new Pacitor gauge with five additional advantages.

Simmonds Pacitor gauges are standard equipment on newest types of transport and military aircraft.

- ✓ 1. Interchangeability of components.
- ✓ 2. Greater compactness.
- ✓ 3. Power unit may be checked out in flight.
- ✓ 4. Tell-tale light in power unit indicates correct operation.
- ✓ 5. Low level fuel signals available.



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systems to alleviate the vast problems of the present enroute and local control load-overload. Completion of the enroute program is expected within the next six years. It is expected to require expenditures of about \$5,700,000 in aircraft and development activity with \$10,500,000 to be spent for production equipment. Total \$14,800,000 appropriation relied by the last session of Congress will go toward purchase and installation of enroute system equipment. Equipment specified for development and installation under the enroute program includes:

Airborne Equipment

- **Lightweight VHF navigation system**—Total of 15,000, costing \$4,900,000 required. This lightweight system will be designed to coordinate enroute navigation such as VOR and ILS aids and communications functions for private and executive type planes.
- **Distance measuring equipment**—Total of 15,000, costing \$5,000,000 required. This will measure DME ground signals and register distance of plane from station being received.
- **Course Computer**—Total of 20,000, costing \$4,000,000 required. This electronic course computer is required for use of autopilot in cross country navigation using the course-way as a

- primary electronic navigation aid.
- **Regulus VHF navigation receiver**—Total of 20,000, costing \$10,000,000 required. This is larger version of light-weight VHF act fulfilling voice functions but for medium and heavy military type planes.
- **VHF or UHF communications transmitters**—Total of 30,000, costing \$10,000,000 required. This is standard as in ground voice transmitters.
- **Transponder and private line com-munications**—Total of 20,000, costing \$15,000,000 required. This transponder aids transponder that sends coded altitude and plane identification information to ground station. Private line is visual communications system that handles enroute traffic control communications without use of voice communications.
- **UHF glide path receiver**—Total of 20,000, costing \$10,000,000 required. This is airborne receiver for ILS glide path signals.

Ground Equipment

- **GCA precision beam approach aids**—Total of 225 GCA sets, costing \$16,000,000 are specified. This equipment is used for a "half-down" bad weather approach or monitoring instrument approach made on beam landing system.

- **Search radar**—Total of 220 sets, costing \$20,000,000 will be required. This search radar is used to monitor and check enroute traffic within a radius of 50 miles at an altitude of 10 miles or less, depending on system. It is necessary device in all weather traffic control systems.
- **Secondary Radar**—Total of 220 sets, costing \$15,000,000 are recommended. This radar is used to interrogate enroute radar transponders carried on planes and automatically receive and record coded signals providing identity, location and altitude information from the plane in flight.
- **Distance measuring equipment**—Total of 1100 sets required at a cost of \$2,000,000. These DME ground stations provide signals that inform a plane in flight of exact linear distance from the station received.
- **VHF-DME equipment**—Total of 220 sets, costing \$2,000,000 will be required. This very high frequency automatic direction finding equipment gives an enroute bearing to any aircraft within its range transmission on VHF radio. It is used as identification of planes for traffic control and in assessing lost planes.
- **ILS beam approach system**—Total of 225 sets, costing \$10,000,000 are required. This includes low frequency compass locator stations at both ends of instrument landing runways. The system consisted of a VHF localizer beam and an VHF glide path system using a cross pointer cockpit indicator to an aircraft.

- **VHF equipment**—Total of 500, costing \$15,000,000 required. These transmitters are planned to replace the frequency low frequency system that use just the standard air way navigation and instrument approach facility. The transmitters is required to indicate to a plane in flight its heading toward the next station being received.
- **Mechanical interlocks**—50 sets, costing \$2,000,000 will be required. These interlocks assure that all airborne equipment is automatically monitored against malfunction by ground equipment and that any malfunctioning of ground equipment is instantly registered on its enroute equipment on which it relies.

- **Approach time of arrival equipment**—Total of 50 sets, costing \$5,000,000 required. This equipment aids at which aircraft can be accepted for arrival and departure at any given airport according to existing traffic and weather conditions.

- **Approach control timing equipment**—Total of 90 sets, costing \$100,000,000 required. This equipment assists in coordinating approach between planes on final landing approach.

The Pulse of Life- FOR MIDGETS, JETS AND MAMMOTS



BENDIX-SCINTILLA AIRCRAFT ignition equipment

Slow personal planes speeding on myriad errands, jets streaking across the sky, gliders, transports spanning the continent—in fact, the aircraft of all sizes rely on the efficiency of Bendix-Scintilla® Ignition Equipment for leading engine maintenance and

aircraft and airlines have long known that, by any test of quality, performance and economy, Scintilla stands alone. All types of planes, flying in every kind of weather, are logging more and safer hours thanks to dependable Bendix-Scintilla Ignition Equipment.

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Bendix-Scintilla distributor unit. This unit is designed to provide accurate timing and to distribute the spark to the correct cylinder.



Bendix-Scintilla magnet unit. This unit is designed to provide accurate timing and to distribute the spark to the correct cylinder.



Bendix-Scintilla spark plug. This unit is designed to provide accurate timing and to distribute the spark to the correct cylinder.

Standardize on BENDIX-SCINTILLA IGNITION EQUIPMENT



SCINTILLA MAGNETO DIVISION of
BENDIX, INC.



Tips for Contractors to the Services

DO . . .

1. Know and visit regularly your nearest regional Air Force and Navy Procurement Field Office
2. Register your plant facilities in the Air Force and Navy Industrial Planning Program
3. Delegate one key executive in your plant to specialize on military procurement
4. Read and re-read bid invitations especially the fine print and specifications
5. If you bid on a product you have never made before, visit the Air Materiel Procurement Division at Dayton or the Navy Bureau of Aeronautics in Washington, talk to the buyer and engineers.
6. Insist on thorough legal study by your attorney of your bid before you submit it and have him examine patent clauses particularly.
7. Investigate annual bid bond procedure if you expect to bid regularly for Air Force and Navy contracts. It will save you time and money.
8. Be sure that you have included every specification in your cost estimate. Once you make a bid you can't back out without penalty.
9. Be on the alert for subcontract competitors. Know the big Air Force and Navy prime contractors in your area who let these subcontracts and see to it that they know about your facilities.
10. If you think your volume may warrant it, investigate the possibility of sharing a Dayton or Washington representative with other noncompeting manufacturers. A competent part-time representative on scene at AMC headquarters saves valuable time in follow up.
11. Put everything in writing. The military services operate on the basis of the written record. Personal contacts are helpful but back up all verbal reports with something on paper.

DON'T . . .

1. Expect Procurement officials to take some of the emergency shortcuts taken at wartime. It usually costs less taxpayers' money and protects both parties when regular procedures are followed.
2. Get tough but don't be a soft touch in your contract dealings. Remember the government is not out to swindle you, but this is just another business transaction and you are expected to protect your own interests.
3. Ask for special favors from contracting officials. Both you and they are inviting trouble when you get unwarranted preferred treatment over your competitors.
4. Spend too much of your contract profits in trip expenses to Wright Field and Washington. Handle as much as you can of your business through the regional procurement field office.
5. Fail to "yellow up" on your contract if it seems to be at a standstill. It may be sidetracked in a basket on somebody's desk and a query will start it moving again.
6. Wait for your firm to be recommended to prime contractors as a sub-contractor from the official source of supply list. As soon as you are approved make it known to all potential sources of sub-contracts in your area.
7. Try to pull any fast deals. Remember the FBI and the General Accounting office are sometimes slow, but exceedingly thorough.
8. Be afraid to carry your case to the top officials for relief if the red tape bind gets unbearable, and is doing you an injustice.
9. Get too worried over government recapture of profits through the Renegotiation Act of 1948. Aim of the act is to prevent fantastic excess profits from military contracts. Both services are aware that a fair profit is necessary to secure support of private industry and the Secretary of National Defense has the authority to exempt either prime contractors or subcontractors where provisions of the act would be onerous or needlessly complicate business procedure.

*Points of interest
to every
drawing pencil user*

HI-DENSITY FOR UNIFORM OPACITY

They WANT IT! It gives you **BETTER** lines that are not flimsy or even on the inside and shortly when in print.

SMUDGE-FREE FOR CRISP SHARP PRINTS

Shades without thickness of lead deposit means a minimum of smudging, and gives fine construction.

MICROTOMIC PROCESS ASSURES SMOOTHNESS

VAN DYKE Leads are made of pure graphite-graphite dusts chemically refined till finer than those in pencils for old grading methods. That's why they're smoother.

STRONGER LEAD FOR LONGER WEAR

A chemically controlled heat treatment process increases very strength throughout the entire lead.

PRECISION GRADING

Mostly also pure of impurities and carefully pointed because each every lead of the micro-tomic process.

**MICROTOMIC
VAN DYKE**

**HI-DENSITY
DRAWING PENCIL**

FREE SAMPLE for you to test
Just mail the coupon and specify
your favorite degree.

**ROUND
LEAD**

4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree

**EXCLUSION
CRUEL
POINT**

4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
4B Degree
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4B Degree

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for comfort, durability,
and light weight**

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SHELBYVILLE, INDIANA

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NEWPORT - SPILLVILLE - 12/22/2010

Master-minding procurement program for National Defense: Aircraft Committee has big job.

A very small—but very select—agency within the National Defense Establishment is masterminding the present military assets and component part procurement program and the obvious long-range industrial mobilization behind it.

This powerful little group is the Nematox Board, which has just been recognized as the "agent" of the Secretary of Defense. Heretofore the Board was just an agency of the military. Now it is the top level unit of the unified command.

► **Board's job**—job of the Board is to plan and coordinate all military matters.

trial matters. It criticizes the military's industrial bill of particulars in peace and war. The group, totaling about 900 people, does not buy materials. It discourages the buying by the three services. For the past year the Board has been standardizing buying procedures and urging procurement responsibility. It is encouraging duplication of purchasing by military units.

One main job is "coordinating" or synthesizing items which actually come from many other government organizations—language plan, specification, design, test, parts cataloging, quality and price control, tooling and accounting practices, or material design expressed as one of the three agencies, or directed by the Secretary of Defense.

• **Aircraft Role**—Probably the most important coordinating activity of the board was, to the aircraft industry, the steering of procurement contract cost-accounting regulations and contract format. The board is not doing the actual steering job, but it is leaning over the shoulders of the firms under scrutiny who are making the changes.

New regulations are coming out but be hot and spell out issues concretely than ever before just what contractors can and can't charge off as costs is a government contract. In exchange for immediate reimbursement of tooling costs, the contractor, under the new regulations, will be subjected to an annual pricing of his production process and cost accounting, periods, "price negotiations" and, as a recently added filip, "quality management." These new rules apply to procurement in all these aspects.

- **Multi-Step Planning**—Model-driven

planning, any nation was a case of the underdog joins the bandwagon under way. This work, the first a handbook, discusses physical state of the world economy of building strategies of critical materials and technologies, and processing power, natural fuel, water, minerals, and production facilities held in strategic position. The production capacity of more than 60 industrial plants is being held in readiness, either as co-operating units, unworked and ready for operation at the turn of a switch, or at operating units making some critical items now, but potentially able to make a different product on short notice.

Through an "Allocation plan" established by the Board, some 11,000 industrial plants are now being surveyed for their ability to make responses, and they ultimately will be given steady contracts which would be evolved at the outbreak of hostilities. The aim here is to spread this technique over about 80 percent of American industry, covering some 15,000 plants.

Timeline Requirements—Military requirements naturally depend on the "Strategic Concept" developed and endorsed by the Joint Chiefs of Staff. In turn, as a goal, the JCS develops an integrated strategic plan for both defense and attack. This is expressed in numbers of men, planes, tanks, guns, ships, trucks, etc., by the three services. The services make a further breakdown into basic raw materials: copper, lead, zinc, the steel, and the life.

With the military services' bulk of materials, the Materials Board serves as the estimated requirements exposed in raw materials and production, manpower, and percentage of industrial capacity. In war the military requirements would be submitted to the National Security Resources Board for approval and allocation of the necessary industrial capacity.

Allocation Plan. With the "Allocation Plan" working, the process of slotting the military requirements to manufacturing would be almost "cut and dried." When the allocation plan is complete, the capacity of the various plants will have been allocated to the military departments which would, as a test, be using the resources of that plant. Should a war come after the plan is in effect, the job of the Munitions Board would be to adjust the plant allocation system to strategic requirements as the war progressed.

Typical of the new resistance of the

**FOR EXTRA
HEAT PROTECTION**

PLUS extra toughness



Whenever electrical jobs call for an on-site repair that can take place, get the extra heat protection, the extra toughness of Deltabond is what you want. These tapes meet all your needs for heat resistance in power and lighting devices: synthetic resin with carbon-fiber—epoxy resin—carbon with carbon or rayon fibers. Such no tape weight—no weight—no weight—no weight, because they're strong, resistant, flexible.

TONERS—Special resins, filled solvents, and tough binders under Dalkemicon are one of seven unusually resistant to gasoline and other strong solvents.

COMPACT — Nervous, low loadstone grade, plenty of hard nodules, very small grains, dolomite when it easily is crushed together.

Flexible—Washable Delbacoat w/latex fits easily for easy handling.

Delphinium aurifolium's wings are transformed only by Grand Elevator, making of the leaves euphorbia-like. Delphinium aurifolium's wings.

Received 10 November 2004; accepted 12 January 2005



Monitors Board is its severely organ and Assault Committee. The Airport Committee is now the most important interdepartmental agency in military aviation. It has moved some of the functions of the now defunct Aeronautical Board and is responsible for overall coordination of military aircraft procurement program.

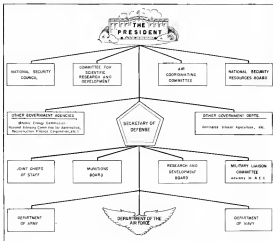
• **Assault Members**—Rear Admiral A. M. Price is chairman of the group. Air Force members are Maj. Gen. E. M. Power, Maj. Gen. F. H. Smith and Brig. Gen. A. A. Kessler. The Navy members include Rear Adm. J. W. Litch and Capt. Lloyd H. Hanson. The Army is represented by Brig. Gen. J. K. Chittenden.

Primary functions of the committee are to:

- Coordinate procurement program for aircraft and related components and to coordinate them with current process now.
- Recommend standardization of materials, processes, equipment, design

- requirements and test procedures.
- Allocate components and materials in accordance with priorities established by the Joint Chiefs of Staff as they are made available by the Munitions Board.
- Recommend combined requirements for aviation components and materials.
- Perform all functions necessary for determining supply and maintenance requirements for type tests and production for military aircraft.
- Standardize Military Aircraft used by more than one agency.
- Evaluate the impact on industry of both current procurement and various planned procurement, indicating areas in which there will be a shortage of resources including manpower, materials and production capacity.
- Recommend legislative measures to accelerate the procurement of aircraft on basis of war.
- Recommend legislation required to implement industrial mobilization pertaining to the aircraft industry.
- Recommend allocation of industrial

- plants for aircraft production for production and for wartime planning of production in between the Navy and Air Force.
- Study the geographical location of the industry and recommend dispersal action if deemed necessary and feasible, including installation underground.
- The Munitions Board consists of Thomas J. Hagwood, chairman, Assistant Secretary of the Army Gordon Gage, Under Secretary of the Navy W. John Keeney, and Under Secretary of the Air Force Arthur S. Barrows. Stuart W. Cassius, Jr., is deputy chairman.
- **Key Staff Members**—Under the general board are the director of staff, Lt. Gen. Leroy Bates, U.S.A.; director for procurement, inspection and utilization, Rear Adm. J. C. Dearbrook, U.S.N.; director for material and foreign trade, Maj. Gen. S. P. Spalding, U.S.A.; and director for requirements and facilities, Maj. Gen. F. W. Tushnet, U.S.A.F.



SHAKING THE TRUTH OUT OF A TURBINE BLADE

- Here a pile of electro-magnets is "shaking" the truth out of a turbine blade. It is being shaken in this laboratory to determine its true natural vibration frequencies—the dangerous frequencies that exist when a very small force causes a large deflection.
- The blade is oscillated by high frequency magnetic impulses. As the speed of the magnetic excitation is increased, the blade is made to vibrate at its various natural frequencies. A photo-theory cell serves to locate these frequencies precisely, while a

measuring microscope reveals the exact amplitude of each.

- Modern research such as this determines blade stresses in a much shorter time than would otherwise be possible, and provides accurate data from which engineers can design turbine blades and many other vital aircraft engine parts that do not possess harmful vibration characteristics.
- Another example of the pioneering research behind the development of Wright aircraft turbines and reciprocating engines.



POWER FOR AIR PROGRESS

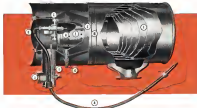
WRIGHT

Aeronautical Corporation - Wood-Ridge, New Jersey

WRIGHT AIRCRAFT CORPORATION
WOOD-RIDGE, NEW JERSEY

CAA Approves South Wind "921"

South Wind's "921" is the first and only aircraft heater of 200,000 BTU capacity to meet the rigid CAA life and safety requirements for thermal anti-icing. This compact, light-weight unit has completely separate combustion and ventilation systems with individual air sources. The hermetically "sealed flame" operates in a jet-engine type burner. It requires no air or fuel regulation, even under widely varying conditions.



A. IGNITION CABLE—Hermetically sealed and shielded to prevent radio interference.

B. BURNER—Jet-engine type burner will operate over complete range of flight conditions with no need for choke, some air or fuel controls.

C. VENTILATED SPARK PLUG—Dual-electrode type with ground electrode attached to spark plug housing.

D. HEATER CASE—Rugged, hot lightweight stainless steel, for use in safety and non-safety—designed at both ends for quick easy attachment of ducting.

E. BURNER HOUSING—All-welded, high quality steel has steel-encapsulated separating the combustion system from the venting air system.

F. HEAT EXCHANGER—Hermetically sealed, aluminum clad heat exchanger constructing multiple surface area and internal South Wind "sealing flow" to maintain uniform, high heat transfer efficiency.

South Wind's "921" is easy to maintain. The entire burner, including fuel nozzle and spark plug, can be removed and serviced in a few minutes. The vented spark plug prevents fouling and insures automatic gap maintenance. Of all-welded, stainless steel construction, South Wind's high-efficiency design allows low stack and metal temperatures at full capacity operation, plus substantial savings on fuel consumption.

G. BURNER HOUSING COVER—Pressure tight housing removable for quick servicing of burner, nozzle and spark plug assembly.

H. FUEL NOZZLE—Pressure type spray nozzle, meters and measures precisely for peak combustion efficiency—air control shutoffs isolate from combustion products to eliminate possible deposits.

I. FUEL LINE—Integral all-welded fuel line and nozzle holder assembly—no fittings to loosen or leak—water resistant—enclosed in combustion system—double supported from venting air ducting.

J. COMBUSTION AIR INTAKE—Separate combustion air intake completely isolated from venting air system.

K. FUEL DRAINS—New pump-type drain requires complete, safe removal of excess fuel with no leakage through jetting.

Heater for Thermal Anti-Icing!



For military or commercial aircraft, simplified, durable South Wind heaters mean easy installation, reliable performance and minimum maintenance. Safety-engineered South Wind heaters are readily adaptable to any type aircraft, especially suited to high altitude cabin heating and thermal anti-icing of wing and tail assemblies.

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Most of the nation's leading aircraft use South Wind "Sealed Flame" Heaters.

South Wind Model	Used in
917 25,000 BTU/HR	Quonset P-47 Bearing 9-10 ✱
906 50,000 BTU/HR	North P-51 Quonset T-28 Bearing 10-10 Crested Air P-105
930 100,000 BTU/HR	Bearing 9-10 Bearing 9-10 ✱
937 100,000 BTU/HR	Bearing 9-10 Bearing 9-10 ✱
921 200,000 BTU/HR	Bearing 9-10 North American P-52 Bearing 9-10 North 9-10 Bearing 9-10 Quonset T-28 Lockheed P-28 Bearing 9-10 "Sealed Flame" 1 ✱
944 300,000 BTU/HR	Bearing 9-10 Bearing 9-10 Bearing 9-10 "Sealed Flame" 1 ✱
929 700,000 BTU/HR	✱

✱ Also many new aircraft are ordered for delivery pending.

Recent expansion of South Wind production facilities increases single capacity to satisfy all delivery requirements. Write today for full information on South Wind models and for expert engineering assistance on your aircraft heating problems. South Wind Division, Swanton-Warner Corporation, Indianapolis 7, Indiana.

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AIRCRAFT HEATING
AND THERMAL
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Another Product of Swanton-Warner

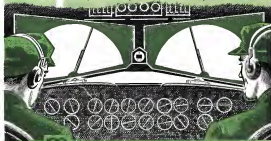
The *New* Marquette model 3V hydraulic wiper

... is the result of 10 years of experience in this highly specialized field. It incorporates every feature that is desirable and practical, based on thousands of installations on military, naval and commercial aircraft.

gives you all these advantages

- Blades are synchronized at all times. Obstruction in path of blade will not stall it.
- Blades wipe dry to same or opposed direction.
- Blades are parked and locked when wiper is out of use.
- Universal drive arm and rod require minimum work of parts.
- Wiper blades are easily replaced.
- Pressure is removed from system when not in operation.
- Minor work may be located at any position in the airplane.

- Stroke on each window can be varied.
- Hydraulic tubing eliminates leakage control and provides additional space for mounting other instruments.
- Motor unit and window unit are universal, providing maximum interchangeability of parts.
- Control lever replaces through center switch.
- Uniform stroke at all speeds.
- Simplicity of design, resulting in lower first cost and reduced maintenance expense.



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AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES

Renegotiation Revived; Key to Profits

Three service Boards to handle deal with industry; broad exemption powers available.

Renegotiation is not one of the big question marks of the current aircraft procurement program.

An amendment passed into the 1948 Supplemental National Defense Act reformed all aircraft contracts under the fiscal 1949 program to renegotiate, with power for administering the phase of the act vested with the Secretary of National Defense. Under the 1948 act all contracts and subcontracts amounting to more than \$100,000 are subject to renegotiation if a contractor, an subcontractor, or a grower was under these contracts in more than \$100,000 in a single fiscal year. All military aircraft procurement contracts agreed to after May 21, 1948 are included in the act.

• **Warfare Renegotiation**—Under the Renegotiation Act of 1946, aimed at recapturing excess war profits, the Air Force recovered a gross total of \$2,100,000 from its contract, production and subcontracting, design, production proceedings. Recently the U. S. Supreme Court upheld the constitutionality of the 1946 Renegotiation Act.

(This decision did not involve any judicial review of public determination under the act.) The Supreme Court also ruled that a company that failed to apply to a U. S. tax court for redetermination of the amount of profits the government sought to recapture through renegotiation could not ask to do so elsewhere in the federal courts.

Details on how Defense Secretary James V. Forrestal proposes to administer renegotiation are still not entirely firm. However a general idea of how he proposes to do the job can be gotten from the recent recommendations of a special ad hoc committee appointed by Forrestal to draw up administrative plans to handle the act. This Board, consisting of Arthur Brown, under secretary of the Air Force, Gordon Gray, under secretary of the Army, and John Rensay, under secretary of the Navy, has submitted a plan which is expected to be approved shortly by Forrestal.

• **Service Renegotiation**—A service renegotiation board will be established for each of the three services to handle contracts dealing with supplies previously awarded with that service. Currently subcontracting will deal primarily with the Air Force and Navy Board. Contractors will be assigned specifically to

one of the three boards for handling of all renegotiation problems. Contractors who deal with more than one service will not deal with more than one renegotiation board.

Separating work of the Air Force, Army and Navy from one renegotiation board will be a top level. Military Renegotiation Board will be headed by a committee of the chairman of the three service boards. This three-man board will function directly under Forrestal as he administers the renegotiation policy.

This board will also try to secure an appeal by contractors on decisions of the service boards. If the policy board rejects a contractor's appeal, he still has one last resort to a federal tax court. The policy board also will assign contractors to one of the three service boards for jurisdiction on renegotiations and determine jurisdiction where joint procurement policies prevail.

• **Aviation Authority**—Under the first act, the board and the policy board have authority to audit books and records and contractors subject to the act. Some annual reports on its activities will be submitted by the policy board beginning next January. Personnel for the four boards has not yet been selected.

Board power to exempt specific contractors and subcontractors from the act was vested in the Congress in the Secretary of National Defense. He will have delegated these powers to the Secretaries of the Air Force, Army and Navy and the top level renegotiation policy board.

• **Annual Renegotiation**—Under present administrative plans, all contractors and subcontractors subject to the act will be required to submit renegotiation claims within six months after the end of each fiscal year. Should losses for these months are now being prepared and will be available within the next six months from any of the three service renegotiation boards.

Forfeiture regulations covering all phases of renegotiation procedures have been drafted by Forrestal's approval. Final form of these regulations may not be ready for some time. Finally they will be published in the Federal Register and thereafter will be available from the Superintendent of Documents, Washington 25, D. C.

• **Service Policy**—Generally speaking, the rules and regulations set out in the act and amendments to it, will be applied to the present economic

conditions, but will be used in administration of the new act by the military.

In determining what portion of profits on a renegotiable contract should be returned, the military believes the contractor should not get more receipts, below the \$100,000 limit. In addition, payments under \$10,000 are not taken against available.

Under the proposed regulations all matters of military aircraft and air component testing, suppliers of parts and parts manufacturing and makers of machinery used in making an end product and in aircraft or component manufacturing are all subject to renegotiation. Contractor's reports will be required to be filed annually within six months after the conclusion of each fiscal year.

• **Proposed Exemptions**—Exemptions are proposed for all contracts prior to May 21, 1948, to exempt charitable, religious and government contractors and subcontractors under a prime or after subcontract that is exempt. In addition, the Secretaries of the Army, Navy and Air Force and the Policy and Renegotiation Board have authority to exempt individual contractors from provisions of the act.

In detailing how machinery and all end product manufacturers came under the proposed regulations, present-day experts explain that a contract or subcontract for a machine or material is negotiable if that item is used.

• **To produce or otherwise operate directly or indirectly on an article included in the act**—produced by, or for, or placed as a component or subcomponent in the production of such an article, such as in the case of the contract, production, assembly, testing, inspecting, or in the case of the contract, production.

This includes not only such as changes in testing tools and machine tools, but also gages and other tools using instruments.

• **To become**—includes the contractor's effort in end product or article included in it, or other articles used in connection with production, including such items as tractors, trucks, and machine tools.

• **In connection with the repair, maintenance, equipment, or operation of the contractor's plant or machinery or equipment used in production, testing or other operations**—includes such items as tractors, trucks, and machine tools, and equipment located in the tool room of a contractor's plant, and special equipment used for the maintenance, repair or other operations, such as, for example, equipment or repair machine.

Industrial Planning Progressing

Roster of manufacturers' capabilities compiled as air procurement guide and index to industry expandability.

Two types of manufacturers are adding their names to the lengthening list kept by the Industrial Planning Division, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio.

The first are those who wish to become Air Force suppliers under the present Procurement for the 70 Group program. The second are those who wish their names on file as possible sources of Air Force material in case of almost instant mobilization.

Actually, the two are part of the same planning scheme.

The 70 Group Procurement is keyed to plans for possible instant industrial mobilization as it allows earliest expansion on a smaller scale for testing out the industry expandability plans and techniques of the planning division.

Procurement Liaison—In preparation for large scale instant production—springing a possible second—the Industrial Planning Division is making well beyond the scale of the present procurement program. But it is coordinating its work closely with the immediate program through liaison work with the Procurement Division.

Working from strategic plans developed at USAF Headquarters, and linked to coordination into combined requirements in the U. S. Joint Chiefs of Staff, the AMIC industrial planners develop and continually revise production schedules based on requirements of these plans.

Key men in the Wright Field planning group are Maj. Gen. F. M. Hays



Maj. Gen. F. M. Hays, Jr.

division chief; Lt. Col. O. B. Mader, deputy chief; Lt. Col. W. R. Carter, program planning section chief; and Lt. Col. C. W. Andrews, resources planning section chief.

Continual Change—Hays' staff makes their job hard. Both the current state of the industry which is the basis of their planning, and the strategic plan from which they must project expansion, are both subject to frequent change, requiring continual revision. These men work on a somewhat national basis where varying boundaries are the general production capacity of the aviation industry, and the changed maximum capacity for almost any mobilization of industry.

Positive action in the division is

increasing production potential of manufacturers who now make or will make products for the Air Force and includes those types of contracts. These are let by the Procurement Division, on recommendation of the Industrial Planning Division.

Industrial Planning contracts to individual manufacturers to make studies and recommendations on the most practical manner of producing products of their plants.

Resource Requirements contracts which purchase specific management plans of operations to meet a specified mobilization schedule and sets up requirements for plant facilities, machine tools, related production equipment, materials, manpower and sub-contractors.

Production Requirements Contracts aimed at achieving potential betterments in advance. Depending on the seriousness of a shortage in some particular item, such a contract may go as far as to provide for redesign of a critical area for high volume production, manufacturing planning, tool design and tool construction to meet a production schedule.

Variety of Contracts—A variety of other contracts are let to industrial, professional, engineering, scientific and research organizations on specific problems of industrial planning. These include:

- Basic economic data research to determine expandability.

- Development of new and substitute sources of materials.

- Development of new high volume manufacturing methods and tools.

- Studies on decreasing vulnerability of the aeronautical industry to enemy action, through underground plants, dispersal, concealment and multiple material sources.

- Establishment and maintenance of reserves by contract, including stand by plants, machine tools and production equipment, and critical and strategic materials.

The division extends an invitation to manufacturers and organizations to participate in contracts such as have been described. Report qualifications and interest to the Industrial Planning Division, Building 11, Area B, Wright-Patterson AFB, Dayton, Ohio.

Annual Planning—The division does its planning on an annual mobilization plan basis. It is felt that conditions will not hold for longer than 12 months, either in terms of basic strategic requirements or in industrial mobilization.

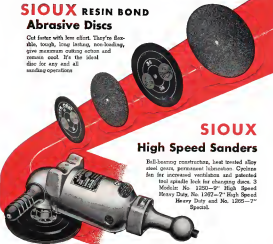
Currently its planning is based only on the strategic requirements supplied by the Air Force. The division must allow for revisions of its plans when Defense Secretary Parsons and the Joint Chiefs of Staff make their long-

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essential completed requirements report for all military services.

It may be assumed that Air Force production capabilities would follow in general the expansion trend taken for World War II aeronautical production, subject to revision upward, in light of the strategic role which the Air Force is expected to play in any subsequent conflict.

Local Buyers

Manufacturers interested in bidding for small procurement contracts for locally produced Air Force installations should inform the commanding officer or contracting officer of the local installation of their interest, and state the particular items they wish to supply. Air Force installations under Air Materiel Command jurisdiction which make such local purchases are listed below. Similar lists of installations under jurisdiction of other commands may be obtained by writing to the headquarters of each of the other Air Force Commands at the addresses listed below.

Length of the AMC installations are the command headquarters (Area A), Wright-Patterson Air Force Base, and the Air Force Technical Base (Area B) of the same base. The seven Air Materiel base areas contain large warehouses for Air Force supplies, and each also has a repair depot for overhauling and repairing such as modifying airplanes, engines, components and equipment.

AIR MATERIEL COMMAND INSTALLATIONS

Alps, Air Materiel Command
Wright-Patterson Air Force Base
Fairport, Ohio
Darien, Ohio
(Procurement Center)
Air Force Technical Base
Wright-Patterson Air Force Base
Darien, Ohio
(Development Center)
Mid-Michigan Air Materiel Area
Cleveland Air Force Base
Middleburg, Pa.
Oklahoma City Air Materiel Area
Tinker Air Force Base
Oklahoma City, Okla.
Ogden Air Materiel Area
Walt Air Force Base
Ogden, Utah
Mobile Air Materiel Area
Savannah Air Force Base
Mable, Ala.
Savannah Air Materiel Area
McCollum Air Force Base
Savannah, Ga.
Warner Robins Air Materiel Area
Seymour Air Force Base
Wichita, Kansas, Kan.
San Antonio Air Materiel Area
Keller Air Force Base
San Antonio, Tex.

Holloman Air Force Base
Albuquerque, New Mex.
Keesler Air Force Base
Keesler, Miss.
Kirtland Air Force Base
Albuquerque, New Mex.
(Aircraft Communication)
Naval Air Force Base
Albuquerque, N.M.
(Flight Training)
Chattanooga Air Force Base
Chattanooga, Tenn.
(Weather Center)
Griffiss Air Force Base
Rome, N. Y.
(Electronics)
Ft. Belvoir Air Force Base
Ft. Belvoir, Tex.
(Naval Storage)
San Bernardino Air Force Base
San Bernardino, Calif.
(Storage & Issue)
Hill Air Force Base
Toledo, Ohio
HMS AF Specialized Depot
Morgantown, Tenn.
HMS AF Specialized Depot
Dayton, Ohio
HMS AF Specialized Depot
Selleys, Ohio
HMS Specialized Depot
Maywood, Calif.
Wallops Laboratory
Fort Belvoir, N. Y.
(Electronics)
Cambridge Field Station
Cambridge, Mass.
(Electronics)

OTHER AF COMMAND HEADQUARTERS

Strategic Air Command
Andrews Air Force Base
Camp Springs, Md.
Air University
Maxwell Air Force Base
Montgomery, Ala.
Air Defense Command
Wichita Air Force Base
Wichita, Kan.
United States Air Force
Langley Air Force Base
Hampton, Va.
Military Air Transport Service
Washington National Airport
Washington, D. C.
USAF Headquarters Command
Ball Air Force Base
Washington, D. C.
Air Force Command Center
Eglin Air Force Base
Vandenberg, Fla.
Air Training Command
Portland Air Force Base
Vancouver, B.C.

USAF Definitions

The following definitions established by the Air Force (Technical Order No. 00-15A-1) will be useful to customers interested in Air Force contracts:

- Special Purpose Base: An article instructed by design or physical character solely to individual applications.
- General Purpose Base: An article



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- **Contractor:** An individual, company, firm or corporation which enters into a written agreement to perform work or furnish supplies
- **Prime Contractor:** A contractor who has entered into a written agreement with the government to perform work or furnish supplies
- **Subcontractor:** A contractor who has entered into a written agreement with a prime contractor to perform work or furnish supplies
- **Licensee:** An individual, company, firm or corporation holding proprietary design rights, manufacturing methods or patents which enters into a written agreement whereby these rights, methods or patents may be used by other individuals, companies, firms, corporations or the government
- **Licensee:** An individual, company, firm, or corporation authorized by a license to use his proprietary design rights, manufacturing methods, or patents in the manufacture of articles offered for sale
- **Manufacturer:** An individual, company, firm or corporation engaged in the fabrication of finished or semi-finished products
- **Modification:** The physical alteration of a special or general purpose item, re-equipped to perform a specific adaptation of the modified article
- **Commercial Item:** An article designed for and available to the open market
- **Specification:** A description of the technical requirements for a material, an item or a service, including a procedure by which the purchaser can determine whether or not the requirements have been met
- **End Item:** An item which, as itself, accomplishes a specific complex function
- **Assembly:** A unit of an end item composed of two or more parts fastened together. Assemblies may be selected to be "take-apartable" and "sub-assemblies" to indicate their relationship to a major assembly
- **Subassembly:** A unit of an assembly composed of two or more parts fastened together
- **Part:** An individual piece of an end item or assembly. Parts may be described as integral, component, or sub, detail or subdetail according to function
- **Attachment:** A supplementary device fastened to, or mounted on a machine, vehicle, apparatus, or other end item to vary or extend the function thereof
- **Accessory:** A supplementary device used in conjunction with an end item, contributing to the effectiveness thereof without extending or varying the basic function

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chases with small business suppliers.
NACA is subservient in its buying
within the limits of its budget limita-
tions and this is accomplished through
local rather than a national purchasing
office.

► **Three Laboratories**—NACA operates
three major research laboratories dis-
tributed geographically across the coun-
try. Its largest and oldest laboratory,
the Langley Memorial Aeronautical
Laboratory, Langley Field, Virginia, is
located a short distance from Hampton,
Va., across the bay from Norfolk. This
laboratory includes basic aerodynamic
research but includes two testing tanks,
a national burning laboratory, and a
large flight test activity.

Second laboratory is one in the flight
propulsion research laboratory, located
at Cleveland Airport, Cleveland, Ohio.
This laboratory specializes in aircraft
power plant research including chemical,
metallurgical and combustion re-
search and also maintains an extensive
flight test activity. Third laboratory is
the Ames Aeronautical Laboratory, lo-
cated at Moffett Field near San Francisco
in the San Jose Peninsula Bay area.
This laboratory specializes in
high speed wind-tunnel research.

► **Purchasing Offices**—Each of these lab-
oratories maintains its own purchasing
office and does its buying for its own
local needs subject only to administrative
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headquarters office, 1774 P Street
N.W., Washington 25, D. C. The
names and addresses of the laboratory

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How USAF Classifies Its Property

A working knowledge of the system of property classification used by the United States Air Force is useful to every individual or company interested in USAF procurement.

So long as accounting of the widely varied assortment of physical properties which are authorized by the policy USAF installations, Air Materiel Command uses a systematic classification system somewhat similar in principle to the familiar Dewey decimal system used in library books in the public libraries.

Each product that a manufacturer makes for the Air Force is classified into one of 12 major groups and then is given a sub-classification number which more specifically identifies it. He should become familiar with the property class or classes in which his products are placed.

A list of major property classes follows:

- Class 01: aircraft and aircraft parts. Complete aircraft are in sub-class 01-A, and complete aircraft for ground instruction purposes are in sub-class 01-B. Other sub-divisions within this class denote aircraft parts.

- Class 02: aircraft engines and engine parts. Complete aircraft engines are in sub-class 02-A. Auxiliary aircraft engines, such as jet engine tailoff units and auxiliary powerplants for electrical systems, are in sub-class 02-B. Other sub-divisions within this class denote aircraft engine parts.

- Class 03: aircraft and engine accessories and necessary parts. Widely varied "catchall" class of special-purpose accessories and accessories. Sub-classes include: 03-A, propeller and parts; 03-B, wheels, brakes, skin, fairs and parts; 03-C, aircraft electrical equipment and parts; 03-D, aircraft carburetors and parts; 03-E, intercommunications and parts; 03-F, accessories aircraft accessories ranging from identicon to lanterns to windshield wipers; 03-G, hydraulic actuators and actuating cylinders; 03-H, aircraft hydraulic systems and parts; 03-I, aircraft fuel systems; 03-J, vacuum oil and de-ice systems and parts; 03-K, miscellaneous engine accessories including: batteries, pumps, coolers, etc.; 03-L, breathing oxygen equipment; 03-M, auxiliary fuel tanks; 03-N, transmissions for rotary wing aircraft.

- Class 04: aircraft hardware, rubber products, bearings.

- Class 05: aircraft instruments, including navigators, flight, engine, and air navigation instruments and parts. This class also includes automatic pilots and gyro control mechanisms.

- Class 06: tools, instruments and parts.
- Class 07: drops, parts, cleaning car-



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including vibration,
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Satisfactorily meeting the qualification requirements of Specification AR-5-38B, ACRO'S Model M Snap-Action Switch, Code No. 29033-1A, is now available for use on Air Force equipment. This is the thinnest switch made—hence extremely light in weight and easy enough to be installed where other switches will not fit. Electrical tests passed at 27 ± 3 Volts DC include the following: Motor load current capacity—make 36 amps, break 6 amps for 25,000 cycles.

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As of June 18, 1948, working capital in the airplane account amounted to \$43,136,264.99.

There is an average lag of a year or more from the date of contract placement to date of deliveries of materials due to the fact that the stockpiling process is adapted to commercial procedures which do not provide for speed delivery.

A publication "The National black gold" recently issued by the Munitions Board, National Military Establishment, Washington 25, D. C., contains additional information on limits of material and personnel detail. It may be obtained from the Munitions Board free by air perspective supply.

High Intensity Lights Will Cost \$431,573

Expenditure of \$431,573 for 10 high intensity approach light lines at an airport is authorized by CAA from fiscal 1949 funds, the Federal Aviation division of CAA has disclosed. The expenditures include the lights themselves at an estimated unit cost of approximately \$700 each, plus cables and other equipment.

The high intensity approach lights are a necessary supplementary aid to the instrument landing and radio landing aids systems which are programmed to help point navigation between the radio service and CAA.

Manufacturers seeking information or restrictions to bid for the airport lighting contracts or other CAA projects, interested for fiscal 1949 contracts may obtain further information on CAA procurement regulations from L. W. Lawrence, Contract and Procurement officer, CAA, Department of Commerce, Washington 25, D. C.

Watch Your Weight

"Make it light" is the first commandment for every company engaged in producing aircraft equipment, particularly in pieces of equipment which is likely to be as heavy. For every unnecessary ounce of weight takes the place of payload in the airplane.

PICTURE ORIENTED

See Photos 11-17, 20 and 21 in this issue.

Can you identify these U. S. Air Force Planes?

(EACH WAS A MILESTONE IN AVIATION HISTORY)



1. This was the world's first military aircraft, accepted by the U. S. Army August 1, 1909. A two group motor powered by a 30 hp. engine, it had a 4.5" wing span and flew at 62 mph. It was used by the U. S. Army, 1909-1910.



2. French made, but one of the best AEP fighters of World War I. This highly maneuverable ship had a 100 hp. Hispano engine, had a maximum 127 mph and carried a 37 mm cannon. It was the first V11 (Hawkins) plane.



3. With its monocoque fuselage, this model was a real advance, made in 1911. It had a 175 mph speed, was a popular racer, and is called the U. S. Army's first biplane. It was used by the U. S. Army, 1911-1912.



4. This three-engine aircraft made its appearance in 1915. With a Pratt & Whitney engine that delivered 950 hp., it topped out at 203 mph. It was the first biplane to be used by the U. S. Army, 1915-1916.



5. And here is a 1945 model. Carrying up to 30,000 lbs. of cargo and eight 140 hp. 550 mph. engines, this amazing craft has 400 mph., 515 ft. per second. You can help recognize it by its 1-45. The wingspan is 115 ft. 6 in.

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an *Announcement* of importance to operators requiring the Pratt & Whitney R-1830-92 engine



exchange policy: *The Steward-Davis R-1830-92 Conversion is now available for \$1685 with the exchange return to Steward-Davis of a credit run-out R-1830-92, complete with carburetor, magnetos and ignition hardware. Freight charges for the return of this engine will be paid by Steward-Davis.*

On October 1st, 1948, the cash price of the Steward-Davis R-1830-92 Conversion will drop one hundred dollars. This reduction in price will be based on the return to us at our expense of a run-out R-1830-92 engine.

What will this mean to you as an operator? This policy will slash the price of the Steward-Davis R-1830-92 Conversion by one hundred dollars every time you purchase after October 1, 1948. This will be particularly important to you if your operations are outside the United States in an area where dollar credits are difficult to arrange. This will mean that the possibilities for direct savings of your capital are great, for not only will you save one hundred dollars each time you purchase an engine, but these savings will continue to compound as you repeat your orders. At the twelfth purchase for instance, you will have earned twelve hundred dollars on the investment of but a single run-out engine.

Why have we instituted this program? Because we wish to be in direct contact with you as the actual operator of your flight operation so that our merchandising policy of performing a service may be distinguished from making a sale. Because we wish to show you how our co-operation can largely shoulder the engine procurement and overhaul problems which you find a prime factor in the operation of your business. To do this to our mutual profit and advantage we realize that such a plan must offer you an incentive in quality, service and savings which will make it wise and sensible for you to purchase all, or at least a major portion of your engines from us. We believe that the combination of this fine engine, this new lowered price and this exchange program are these incentives.



The Steward-Davis R-1830-92 Conversion, completely overhauled, warranted for 100-hours, returns prepared for long-time storage and packaged for shipment, is now immediately available from stock at WILLIS AIR SERVICE, INC., Teterboro Air Terminal, New Jersey; WESTCOAST AIRCRAFT, Boeing Field, Seattle, Washington; and STEWARD-DAVIS, 13501 South Western, Gardena, California.

From High-Speed Bombers to High-Speed Transports MARTIN LEADS THE WAY INTO THE FUTURE!



YESTERDAY: The fastest Martin B-26 bomber, built to 100 mph less any other bomber of its day and speedier than most present designs, made its first flight of the world's military aircraft was the 1935 Curtiss Export for Glenn L. Martin.

TODAY: The Martin B-26 is a military transport carrying 40 military personnel or more, then 12,000 pounds of military cargo—over twice the capacity of today's largest transport used in World War II and still in service. And the B-26 carries at speeds 120 m.p.h. faster than the World War II planes of yesterday. . . and operates from the same short runways, small airports.

Tomorrow

Martin engineers are constantly at work harnessing higher and higher speeds to the transport and combat needs of our Military Services. In the days to come, look to Martin for rotary wing aircraft and other swiftly developing fields.

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"GAM BARK," Glenn Barks' new book, is the thrilling story of the heroic men who flew and serviced Martin B-26 Marauders in bomber units from the Southwest Pacific to the gates of Berlin. You are proud to be involved with these gallant men.



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➤ Early this morning, this lobster was flown to Boston in the Atlantic-Toucan. It will provide the main dish at the Brown Palace Hotel in Denver. . . all because of modern high-speed air cargo transport.

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➤ Today, more airlines using these cargo . . . as they do their passenger transports . . . with the Sperry A-12 Compass for steady, level flight—the Automatic Approach Control to guide valuable cargo safely down the runway—the Gyroscopic Logarithm and other light instruments for accurate information on position and direction.

➤ These and other well-known Sperry products are designed to bring

loads of trouble-free service to you designed to enable airlines to operate their cargo and passenger services more efficiently and more economically—with more profit. For example, the new Engine Analyzer checks engine performance during flight and prints out easily-tape on the ground.

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